STORING AND DISPENSING CONTAINER FOR PRODUCT

This application claims the benefit of U.S. Provisional Application No. 60/487,695 filed on July 15, 2003.

BACKGROUND OF THE INVENTION

There are a variety of storing and dispensing containers in the market, particularly those for storing and dispensing wipe type products. Wipe type products, or wipes, have been made from a variety of materials which can be dry or wet when used. Wet wipes can be moistened with a variety of suitable wiping solutions. Typically, wet wipes have been stacked in a container in either a folded or unfolded configuration. For example, containers of wet wipes have been available wherein each of the wet wipes stacked in the container has been arranged in a folded configuration such as a c-folded, z-folded or quarter-folded configuration as are well known to those skilled in the art. Sometimes the folded wet wipes have also been interfolded with the wet wipes immediately above and below in the stack of wet wipes. In an alternative configuration, the wet wipes have been placed in the container in the form of a continuous web of material which includes perforations to separate the individual wet wipes and which is wound into a roll. Such wet wipes have been used for baby wipes, hand wipes, household cleaning wipes, industrial wipes and the like.

The conventional packages which contain wipes, have typically been designed to be positioned on a flat surface such as a countertop, table or the like. Such conventional packages have generally provided a plastic container, tub or package which provides a sealed environment for the wet wipes to ensure that they do not become dirty or overly dry. Some of the conventional packages have also been configured to provide one at a time dispensing of each wet wipe which can be accomplished using a single hand after the package has been opened. Such single handed, one at a time dispensing is particularly desirable because the other hand of the user or care giver is typically required to be simultaneously used for other functions. For example, when changing a diaper product on an infant, the care giver typically uses one hand to hold and maintain the infant in a desired position while the other hand is attempting to dispense a baby wipe to clean the infant.

However, the dispensing of wipes from such conventional containers for wipes has not been completely satisfactory. For example, many conventional containers are not compact and easy to transport while also being reliable and easy to store and dispense wipes, in either a reach-in or pop-up format, in a same package container. Further, the

invention herein better enables such containers to maximize the size of the dispensing opening while still maintaining an easy opening lid, and optionally also achieving a snap open hinge which allows consumers access to the wipes for easier dispensing, particularly in a reach-in wipes product format.

SUMMARY OF THE INVENTION

In response to the difficulties and problems discussed above, for example, a new package for wipes that has improved storage and dispensing, has improved compactness and reliability, has been invented. The purposes and features of the present invention will be set forth in and are apparent from the description that follows, as well as will be learned by practice of the invention. Additional features of the invention will be realized and attained by the packages particularly pointed out in the written description and claims hereof, as well as from the appended drawings.

As used herein, "flexible" means a non-foamed polymeric containing film with a thickness of about 250 micrometers or less or a foamed polymeric containing film with a thickness of about 2000 micrometers or less.

As used herein, "rigid" means a level of stiffness commonly associated with materials used to manufacture wet wipes tubs of parts thereof. Numerically, these materials typically have a flexural modulus (as measured in accordance with ASTM D790 "Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials") of about 100 Newtons per square millimeter or greater, more specifically from about 1100 to about 1550 Newtons per square millimeter.

In one aspect, the invention provides a storing and dispensing container for product. The container comprises a flexible pouch for storing product. The pouch comprises a bottom portion with side portions adjoined to the bottom portion and each side portion adjoined to an adjacent side portion and the side portions extending away from the bottom portion. The side portions are also adjoined to a top portion with the top portion overlying the bottom portion and being generally parallel to the bottom portion. The top portion includes a removable portion which seals the product within the pouch in a first condition and which allows access to the product within the pouch in a second condition. The container further comprises a rigid flip top comprising a lid connected to a flange by a hinge. The flange is affixed to an outer surface of the pouch at the top portion of the pouch such that the rigid flip top overlies the removable portion of the pouch and the removable portion is surrounded by the rigid flip top at the outer surface of the pouch. The flange forms a dispensing orifice through which the product can be dispensed when the lid

is opened and the lid is removably positonable to be closed to engage the flange and thereby seal the pouch at the outer surface where the removable portion is surrounded by the rigid flip top.

In another aspect, the invention provides, optionally or additionally, the lid including a latch with an elongate first rib projecting horizontally therefrom and the flange including a catch with an elongate second rib projecting horizontally therefrom. In this way, the first and second ribs removably engage each other in an interference fit to maintain the lid closed, and removably disengage each other when the lid is opened and wherein at least one of the first and second ribs has a non-uniform elongate cross-section.

In still another aspect, the invention provides, optionally or additionally, the lid having a length and a width with the length being greater than the width. The lid can be defined by a horizontal perimeter and has an opening tab projecting outwardly of the perimeter with at least 60% of the opening tab being located on either side of a bisecting line located through the width of the lid at a midpoint of the length of the lid.

In other aspects, the invention provides, optionally or additionally, the hinge comprising a living hinge, the living hinge including a central strap and a pair of toggle straps with each toggle strap located on an opposite side of the central strap. In this way, the living hinge enables the lid to move throughout a first open position such that moving the lid past the first open position requires overcoming a force created by the central strap and the pair of toggle straps, and when the force is overcome the lid is maintained in a second open position with the lid in the second open position being at an arc greater than the arc of the lid in the first position.

In yet other aspects, the invention provides, optionally or additionally, the lid having a first Rigidity Value and the flange having a second Rigidity Value, where the first Rigidity Value is greater than the second Rigidity Value.

As with the other packages of the invention, the pouch and/or rigid flip top can be transparent or translucent to provide an indication of the quantity of wipes remaining in the container. The pouch and/or rigid flip top can be made of various polymers, copolymers, and mixtures, including, e.g., polyethylene, polypropylene, polyester, polystyrene, and other polymers.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and are intended to provide further explanation of the invention claimed. The accompanying drawings, which are incorporated in and constitute part of this specification, are included to illustrate and provide a further understanding of the packages of the invention. Together with the description, the drawings serve to explain the various aspects of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be more fully understood and further features will become apparent when reference is made to the following detailed description of the invention and the accompanying drawings. The drawings are merely representative and are not intended to limit the scope of the claims. Like parts of the packages depicted in the drawings are referred to by the same reference numerals.

Figure 1 representatively shows a perspective view of a flexible pouch for product such as wipes, with a removable portion shown in dotted lines sealing the product within the pouch.

Figure 2 representatively shows a cross-sectional view of the container for wipes illustrated in Figure 1 with a stack of wipes therein, taken along the line 2-2.

Figure 3 representatively shows a perspective view of an example of a container for wipes according to the present invention as a user is about to move the lid from being closed to being open.

Figure 4 representatively shows a top view of an example of a container for wipes according to the present invention.

Figure 5 representatively shows an enlarged top view of the rigid flip top, with the lid and the flange laid open flat to see the inside of the rigid flip top (i.e., as would be seen if the lid in Figure 3 would be moved to a second open position, that is, a fully open position relative to the container).

Figure 6 representatively shows a bottom view of the rigid flip top, with the lid and the flange laid open flat to see the outside of the rigid flip top (i.e., as would be seen from underneath if the lid in Figure 3 would be moved to a second open position, that is, a fully open position relative to the container, and without the pouch connected to the flange).

Figure 7 representatively shows a right side view (i.e., and where the left side view is a mirror image thereof except for the opening tab) of the rigid flip top in a fully open flat orientation.

Figure 8 shows an enlarged side view of hinge 56 seen between the lid and flange of the rigid flip top in Figure 7.

Figure 9 representatively shows an enlarged view of the circled portion 9 seen in Figure 5.

Figure 10 representatively shows an enlarged view of the circled portion 10 seen in Figure 5.

Figure 11 representatively shows an enlarged cross-sectional view of a portion of the latch of the lid seen in Figure 10, taken along the line 11-11.

Figure 12 representatively shows an enlarged cross-sectional view of a portion of the latch of the lid seen in Figure 10, taken along the line 12-12.

Figure 13 representatively shows an enlarged cross-sectional view of a portion of the rigid flip top seen in Figure 3, taken along the line 13-13, and is also an enlarged view of the circled portion 13 seen in Figure 14.

Figure 14 representatively shows a cross-sectional view of the rigid flip top seen in Figure 3, taken along the line 14-14.

Figure 15 representatively shows a cross-sectional view of a portion of the rigid flip top seen in Figure 17, taken along the line 15-15.

Figure 16 representatively shows an enlarged cross-sectional view of the circled portion 16 seen in Figure 14.

Figure 17 representatively shows a top view of a rigid flip top in accordance with the present invention.

Figure 18 representatively shows equipment for conducting the Rigidity Value test.

Figure 19 shows an enlarged view of the probe seen in Figure 18.

Figures 20-23 representatively show results from respective parts of a rigid flip top made in accordance with the present invention and tested according to the Rigidity Value test.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is directed at solving problems related to storing and dispensing product such as, wipes and wet wipes, from containers. As representatively illustrated throughout the figures, the present invention provides a storing and dispensing container 20 for product 22. Product 22 could be a variety of pliable type items, such as wipes, wet wipes or others where single unit dispensing is desired. The container 20 generally includes a flexible pouch 30 for storing product 22 and a rigid flip top 50 for dispensing the product and then resealing the container. The pouch includes a bottom portion 32 with side portions 34 adjoined to the bottom portion and each side portion adjoined to an adjacent side portion and the side portions extending away from the bottom portion. As seen in the Figures, the pouch is rectangular, however, it could be a variety of other shapes as long as there is a bottom adjoined to at least one side (e.g., the side being a cylinder). The side portions 34 are also adjoined to a top portion 36 with the top portion overlying the bottom portion. Advantageously, the top portion can be generally parallel to the bottom portion, but need not be. The top portion 36 includes a removable

portion 40 which seals the product within the pouch in a first condition (as seen in Figure 1, i.e., before the product is dispensed the first time) and which allows access to the product within the pouch in a second condition (i.e., when the removable portion is removed and the rigid flip top 50 is in an open condition (as would be seen in Figure 5 were the shown rigid flip top 50 affixed to the pouch 30 seen in figures 1-4). Removable portion 40 may be a perforated die cut oval (as seen in Figure 1), a scored material, of a variety of shapes, and can include a conventional resealable label therewith. The use of "top," "bottom" and "side(s)" herein only establishes positioning of the various components relative to one or another and otherwise does not limit the scope of the invention.

The rigid flip top 50 includes a lid 52 connected to a flange 54 by a hinge 56, see for example, Figures 3-7. The flange is affixed (e.g., as discussed further herein) to an outer surface 38 of the pouch at the top portion 36 of the pouch such that the rigid flip top overlies the removable portion 40 of the pouch and the removable portion is surrounded by the rigid flip top at the outer surface of the pouch. The rigid flip top may be located partially or entirely affixed to only the top portion 36, or a portion of it may also be affixed to a side portion, as long as the latch 60 is positioned adjacent the top portion. The flange 54 forms a dispensing orifice 58 through which the product can be dispensed when the lid is opened. The flange can include strengthening ribs 55 around the flange to stiffen the flange as desired. The lid 52 is removably positonable to be closed (e.g., as seen in Figures 3-4) to engage the flange and thereby seal the pouch at the outer surface where the removable portion is surrounded by the rigid flip top, and in this way seal the pouch and product therein from the environment outside the pouch after the removable portion 40 is removed and no further wipes are desired during a particular dispensing occasion. The lid can include an annular sealing ring 51 extending downwardly away from the inside of the lid and which is sized to fit against an annular sealing ring 53 extending upwardly away from the inside of the flange, to thereby assist in better sealing the lid to the flange when the lid is closed.

Various additional features of the invention will now be discussed. These features can be used individually or in combination with some or all of those discussed herein, as desired to take advantage of the invention in different ways. One of these features concerns the lid 52 and the flange 54, see for example, Figures 5 and 10-13. The lid can include a latch 60 with an elongate first rib 62 projecting horizontally therefrom, and the flange can include a catch 64 with an elongate second rib 66 projecting horizontally therefrom. The first and second ribs 62 and 66, respectively, can removably engage each other in an interference fit to maintain the lid closed (e.g., as seen in Figure 13) and removably disengage each other when the lid is opened. Advantageously, at least one of

the first and second ribs 62 and 66, respectively, has a non-uniform elongate cross-section (i.e., the non-uniform cross-section being determined along the length of the rib). Such non-uniformity is seen as one example in Figures 10-12. In this way, e.g., a gradual decreasing interference (i.e., due to thickness and/or amount of horizontal projection) of the rib profile provides less material on one side of the latch (e.g., the right side in Figure 10) to thereby reduce the force needed to overcome the interference fit relationship with the rib on the catch. As seen in Figure 10, approximately halfway along the length of the latch, the rib 62 is of uniform elongate cross-section which enables, if desired, an audible click to signal complete closure of the lid upon the flange. Further in this regard, another noteworthy advantage to such a non-uniform rib feature is a unique latch/catch relationship that enables the latch to peel away from the catch as the opening tab 74 flexes the lid toward the open position, rather than having to overcome the entire latch/catch interference fit at one time to disengage the two members.

The non-uniformity of the rib 62 and/or 66 could further be defined as an angled (e.g., tapered) elongate cross-section, as seen in detail in Figures 11-12. Alternatively, or additionally, the elongate first rib of the latch can project inward (e.g., as seen in Figure 10) relative to a perimeter of the lid in a horizontal plane of the lid and the elongate second rib of the catch can project outward (e.g., as seen in Figure 13) relative to a perimeter of the flange in a horizontal plane of the flange. Still alternatively, or additionally, the first rib can have a non-uniform elongate cross-section (e.g., as seen in Figure 10) and the second rib can have a uniform elongate cross-section (i.e., as would be seen with the rib in Figure 10 if it had the same cross-section seen in Figure 11 for its entire length from end to end).

Another of these features concerns the lid 52 and the opening tab 74, see for example, Figures 3-5, 15 and 17. The "opening tab" is defined herein as any portion of the lid that projects radially out from the lid away from the sealing portion of the rigid flip top and thereby enables a user to place at least their finger tip(s) between the projecting portion and the flexible pouch to assist in separating the lid from the flange when moving the lid to the open position. The opening tab protrudes from the rigid flip top 50 so that a user can more easily find it and have a more identifiable leverage point to open the lid. By placing the opening tab off-center (e.g., left or right of bisecting line 76-76, or alternatively, a tab left and a second tab right of line 76-76), and particularly at least 60%, and more advantageously at least 70%, at least 80%, at least 90%, and most advantageously 100%, of such opening tab being so located, one is better able to maximize the size of the dispensing orifice 58 for accessing the wipes and facilitating dispensing. The size of the dispensing orifice is a function of the area (width and length) of the wipes stack within the

pouch, minus manufacturing tolerances for producing the pouch material, removable portion, wipes stack, and affixing the flange to the pouch. If the opening tab 74 is placed in the center of the rigid flip top similar to conventional packages, the size (i.e., dispensing area) of the dispensing orifice is disadvantageously reduced by the length of the protrusion of the opening tab beyond the perimeter of the lid in order to be able to keep the perimeter of the rigid flip top inside the perimeter of the container, which is needed for acceptable container manufacturing tolerances and consumer acceptance (i.e., will not pop open inadvertently). Also, and without being limited to a theory of operation, by placing the opening tab off-center, for a given force applied to the tab, the torque generated to open the lid will increase. As a result of such increase, it can be easier (i.e., through less effort) to open the lid.

Referring to Figure 17, the lid is defined by a length 70 and a width 72, where the length is defined as being greater than the width (i.e., and the length and width are each determined as the respective sides of the largest rectangle that can be formed around the lid in a horizontal plane of the lid). If the length and width are equal, then the dimension of either is used herein as the length and width. The lid can be further defined by a horizontal perimeter and the opening tab 74 projecting outwardly of the perimeter. The opening tab (i.e., at least the leverage point created by the opening tab) can be advantageously located on either side of a bisecting line located through the width of the lid at a midpoint of the length. As seen in Figure 17, such a bisecting line for the lid 52 would be line 76-76 located through the width of the lid at the midpoint of the length. Generally, for lids of other shapes the bisecting line would be determined by placing the bisecting line perpendicular to the length of the lid (as length is defined above) at the midpoint of the length. More advantageously, the opening tab (i.e., at least the leverage point created by the opening tab) can additionally be located on the non-hinge side of a bisecting line located through the length of the lid at a midpoint of the width. As seen in Figure 17, such a bisecting line for the lid 52 would be line 78-78 located through the length of the lid at the midpoint of the width. Generally, for lids of other shapes the bisecting line would be determined by placing the bisecting line perpendicular to the width of the lid at the midpoint of the width. Alternatively, or additionally, the opening tab 74 can include a pocket 80 (e.g., Figure 15) located between the opening tab and the outer surface adjacent thereto, which aids a user in grasping the flange when opening the same. Alternatively, or additionally, the lid may be of a substantially uniform simple geometric shape (e.g., circle, oval, triangle, square, rectangle, pentagon, hexagon, septagon, etc.) except for the opening tab 74 projecting outwardly of the perimeter.

Another of these features concerns the hinge 56, see for example, Figures 5-9. Often times it can be desirable to have a snap-open hinge. The hinge can be a living hinge, where "living hinge" is defined herein to mean a hinge formed integrally with the members it is between. As seen in the figures, for example, such members are the lid 52 and the flange 54. The hinge can include a central strap 92 and a pair of toggle straps 94, with each toggle strap located on an opposite side of the central strap. Advantageously, the hinge enables the lid to move throughout a first open position (e.g., from about 0 degrees defined relative to a horizontal plane, to at least about 90 degrees defined relative to the same horizontal plane). Then, moving the lid past the first open position requires overcoming a force (i.e., a stress release point anywhere from about 90 degrees defined relative to the same horizontal plane to about 180 degrees defined relative to the same horizontal plane) created by the central strap and the pair of toggle straps, and when the force is overcome the lid is maintained in a second open position (i.e., anywhere past the stress release point, e.g., about 135 degrees relative to the same horizontal plane which would then allow the lid to further open about another 30 degrees) and thereby the lid in the second open position is at an arc greater than the arc of the lid in the first open position. To move the lid from the second open position to be closed requires the force be overcome in a direction reverse that when moving the lid from the first open position to the second open position.

Without being limited to a theory of understanding, such snap-open feature which defines the first and second open positions, is believed to be achieved as follows, see, for example, Figures 7-9. The central strap 92 creates a pivot axis midway between its ends connected to the lid and the flange, and as such acts very much like a mechanical hinge. The toggle straps 94 are located on either side of the central strap and are located in a different horizontal plane than the central strap (e.g., seen in Figure 8 where the central strap is in a horizontal plane below a horizontal plane containing the toggle straps) By nature of the rigid flip top's elliptical geometry, the toggle straps span a greater distance than the living hinge and from a side view when the lid is closed, the toggle straps are positioned further outside the perimeter of the rigid flip top than the central strap. As such, when the lid is closed the toggle straps are under mild compression. Once the lid is opened, the toggle straps' horizontal pivot axis moves toward the central strap's horizontal pivot axis. As this happens, the toggle straps are under increased tension and stretch until the toggle straps' horizontal pivot axis moves past the central strap's horizontal pivot axis and the toggle straps' horizontal pivot axis moves into a relaxed, as-originally-formed position. This movement produces a spring/snap action as the tension on the toggle

straps increases, peaks and then rapidly decreases through the range of movement from the lid being closed to being fully opened.

More particularly, the hinge can be defined where at least one toggle strap includes a pair of channels with a first such channel 96 located at a first end of the strap adjacent the lid and a second such channel 98 located at a second end of the strap adjacent the flange. In this way, the toggle straps pivot at their ends as opposed to in their middle like the central strap, which can be further advantageous to the snap-open feature. Yet alternatively, or additionally, the entire hinge when the lid is closed, including a thickness of the adjoining lid and flange adjacent the hinge, can have a thickness no more than, and in order of increasing advantage: about 4 cm, about 3 cm, about 2 cm, about 1 cm, or about 0.5 cm.

Another of these features concerns a relationship of the lid 52 and the flange 54, see for example, Figures 5 and 18-23. This feature can be particularly advantageous in combination with the snap-open feature, because the rigidity of the lid and the flange help contribute to the reliability of the snap-open feature especially since the rigid flip top is affixed to a flexible material such as that forming the pouch. Also, additionally or alternatively, and without being limited to a theory of operation, the rigidity of the lid and flange, and particularly when the flange is less rigid than the lid, may aid in better maintaining good adhesion between the flange and the flexible pouch to better prevent peeling of the flange away from the flexible pouch when opening the rigid flip top. In this regard, the lid can have a first Rigidity Value (as defined herein) and the flange can have a second Rigidity Value, where the first Rigidity Value is greater than the second Rigidity Value. The first Rigidity Value may be that of the lid in either a length or width orientation, and the second Rigidity Value may be that of the flange in either a length or width orientation. In any of these cases, it is advantageous that the first Rigidity Value in at least one of the dimensions of lid's length or width be greater than the second Rigidity Value in at least one of the dimensions of the flange's length or width. Additionally or alternatively, it may be advantageous that, and in order of increasing advantage, the first Rigidity Value may be at least two times greater than the second Rigidity Value or at least three times greater than the second Rigidity Value or at least four times, five times or six times greater than the second Rigidity Value. The rigidity of the flange and the lid is contributed to by, for example, the type of material used, the thickness(es) of the component, the component's proportion of solid area to total area (i.e., including spaces and holes), the configuration of the component, and others known to those of skill in the art.

Rigidity Value Test Method (see, e.g., Figure 18-23)

Sample Preparation, in the order as follows: Unless stated differently, all testing is done under TAPPI standard conditions. Separate the rigid flip top into its two pieces at the center point of the hinge between the lid and the flange, without materially changing the functional ability of the rigid flip top components as they would be used before being separated. Separating could be with a scissors, knife, or saw, whichever tool, or another that enables separating the lid from the flange without materially damaging either of the components. With reference to Figure 18, test sample 100, for example a lid, is secured to the L-shape holder 200 at a fixed point 150 in such a manner (e.g., use of a screw, clip, etc.) to prevent movement of the test sample relative to the fixed point except in the vertical direction as caused by the test probe and all this so as to not materially change the functional ability of the rigid flip top component as it would be used before being so secured. A small screw hole (no more than 1/8 inch in diameter) and fitted screw may be used to so secure the test sample. The fixed point is located in the range of 5% to 10% inside the perimeter of the sample when determining the Rigidity Value relative to the width of the sample. The fixed point is located in the range of 3% to 7% inside the perimeter of the sample when determining the Rigidity Value relative to the length of the sample. The distance between the fixed point 150 and the inside edge 152 of the L-shaped holder 200 is 5 mm. The sample, when a flange, should be oriented in a facing upward direction relative to the equipment seen in Figure 18, where the upward face of the sample is the one facing away from the flexible pouch when the rigid flip top is secured to the flexible pouch for use. The sample, when a lid, should be oriented in a facing downward direction relative to the equipment seen in Figure 18, where the downward face of the sample is the one facing towards the flexible pouch when the rigid flip top is secured to the flexible pouch for use and the lid is in the closed position.

Test Procedure, in the order as follows: The test can be carried out on a standard tensile tester such as an MTS Sintech 1/G test machine with TestWorks 4.07B software, where MTS is known as MTS Systems Corporation, 14000 Technology Drive, Eden Prairie, Minnesota 55344-2290. With reference to Figure 18, the L-shape holder 200 is clamped in the clamping jaw 300 of the tester and the test sample 100 is perpendicular to the probe 500 (i.e., in a horizontal plane relative thereto). With reference to Figure 19, the probe 500, made of solid aluminum, has a uniform diameter d of 1.27 cm, a length A of 11.43 cm, and a spherically rounded tip that is smooth to the touch. The probe has a threaded portion 520 having a length B of 1.0 cm. The threaded portion 520 is adapted to screw into a 25 Newton Load Cell 400. The end of probe 500 opposite threaded portion 520 is rounded with a 0.635 cm radius. The center of the probe 500 is aligned a distance L of 5 mm inward from the edge of test sample 100 opposite the fixed point, as shown in

Figure 18. The probe 500 is then lowered until it touches the test sample 100 with a force of 1.5 grams. This establishes the starting point of the test. The cross head speed of the probe 500 is set to 0.2 inches per minute. The probe 500 is activated so that it moves downward at a speed of 0.2 inches per minute. The probe 500 is stopped after it has traveled a distance of 10 mm downward, i.e., as measured from the starting point of the test. For each run of the test, the peak-slope of the load versus deflection curve over the 10mm distance is recorded on a computer using the TestWorks Version 4.07B software program. With the sample oriented to determine its width dimension Rigidity Value (i.e., the probe and fixed point being at opposite edges of the sample along bisecting line 76-76), the Sample Preparation and Test Procedure is repeated for a total of 5 new samples of the same part of the rigid flip top (i.e., testing the same part of the rigid flip top each time but doing so with a new sample, e.g., flange or lid respectively, for each of the 5 repeats) and the combined results are averaged to determine the peak-slope of the load versus deflection curves over the 10mm distance for the five tested samples. With the sample oriented to determine its length dimension Rigidity Value (i.e., the probe and fixed point being at opposite edges of the sample along bisecting line 78-78), the Sample Preparation and Test Procedure is completed, using the steps above.

Results: A load versus deflection curve for a flange, taken relative to its width, is shown in Figure 20. Point B represents the beginning of the data collection. Point M represents the location where the first 20% of all data points in the test are collected, i.e. the total data points between points B and M represent the first 20% of all the data points collected during the test. Then "peak-slope" as used herein is defined by the slope of line BM. The peak-slope in this example, and thus the Rigidity Value of the flange in the width dimension, is 4.3 grams force per millimeter (gf/mm). A load versus deflection curve for a flange, taken relative to its length, is shown in Figure 21. The peak-slope in this example, and thus the Rigidity Value of the flange in the length dimension, is 2.3 gf/mm. A load versus deflection curve for a lid, taken relative to its width, is shown in Figure 22. The peak-slope in this example, and thus the Rigidity Value of the lid in the width dimension, is 26.5 gf/mm. The load versus deflection curve for a lid, taken relative to its length, is shown in Figure 23. The peak-slope in this example, and thus the Rigidity Value of the lid in the length dimension, is 11.0 gf/mm force per millimeter (gf/mm) This concludes the Rigidity Value test method.

As shown in Figures 20-23, e.g., the peak-slope of the lid is greater than that for the flange, even when comparing the length orientation to the width or length orientations of the flange. For example, using this Rigidity Value Test Method and a rigid flip top in accordance with the invention, the peak-slope for the lid in its width orientation may be

26.5 gf/mm, while the peak-slope for the flange in its width orientation may be 4.3 gf/mm. This indicates that the Rigidity Value of the lid is more than 6 times the Rigidity Value of the flange.

The "affixed" relationship of the rigid flip top to the pouch can be by various mechanical and chemical methods known in the art, including, but not limited to, use of glue or other bonding material, thermal bonding or welding, ultrasonic bonding or welding, or other joining methods as long as they create a permanent joined relationship between the pouch and the rigid flip top. The rigid flip top can be made by a variety of conventional techniques, including for example, injection molding, made from polypropylene, and/or being a single piece with a living hinge.

The pouch of the present invention can be made from various materials and in various configurations. By way of example without limitation, reference is made to the Figures for some of these. The pouch can be made of polyester film laminated to polyethylene film. The polyester film can be reverse printed, so the printing is between the two film layers. Alternatively, a single-ply surface printed film can be used. A single–ply film can be composed of one or more layers of polyolefin, and, e.g., formed in a coextrusion. The flexible pouch with product therein can be formed by various form, fill and seal techniques known to those of skill in the art.

The product, e.g., wipes or wet wipes, can be arranged in the pouch in any manner which provides convenient and reliable one at a time dispensing and which assists the wipes in not becoming dirty and/or overly dry. For example, the wipes may be arranged in a dispenser or container as a plurality of individual sheets arranged in a stacked configuration to provide a stack of wipes which may or may not be individually folded. The wipes may be individual wipes which are folded in a c-fold, z-fold, quarter fold or other zigzag fold or interfolded or non-interfolded configurations as are known to those skilled in the art. The product 22 may include a plurality of wipes stacked one on top of each other in a non-interfolded configuration, for "reach-in" dispensing. For such a non-interfolded wipe, each wipe is folded onto itself with no portion of another wipe being positioned between or underneath any portion of the folds of the adjacent wipe(s). These configurations for wipes, as well as those discussed herein, may be provided by means known to those skilled in the art.

Alternatively, the individual wipes can be interfolded or in other ways related such that the leading and trailing end edges of successive wipes in the stacked configuration overlap, for "pop-up" dispensing. In such a configuration, the leading end edge of the trailing wipe is loosened from the stack by the trailing end edge of the leading wipe as the

leading wipe is removed by the user. The wipes can be interfolded to facilitate such dispensing by means known to those skilled in the art.

Yet alternatively, the wipes can be arranged in the pouch as a continuous web of interconnected wipes which are folded in an accordion-like stacked configuration or a roll. The individual wipes can be connected together along lines of frangibility, such as lines of perforations, to ensure that the trailing wipe is in position for grasping by the user after the leading wipe is removed. For example, the wipes can be provided by a continuous web of material which has a series of lines of frangibility extending across the width of the web. The portion of the web of material between successive lines of frangibility provides each individual wipe. The lines of frangibility can be provided by means known to those skilled in the art such as perforations, indentations or cuts in the web of material. For example, the lines of frangibility or perforations can be provided in the web of material by passing the web of material between a die cutter roll and anvil roll. After the lines of frangibility have been incorporated into the web of material, the web can then be arranged in a stacked configuration for easy insertion into the pouch during formation thereof.

The container of the present invention can include any suitable number of individual wipes depending upon the desired packaging and end use. For example, the container can be configured to include a stack of wipes which can include at least about 5 wipes and desirably from about 8 to about 320 individually wipes, and more desirably from about 16 to about 64 wipes. The size and shape of the stack of wipes is dependent upon the size and shape of the container and vice versa.

Each wipe is generally rectangular in shape and defines a pair of opposite side edges and a pair of opposite end edges which can be referred to as a leading end edge and a trailing end edge. The leading end edge of each wet wipe is typically positioned in the pouch under the dispensing orifice to be grasped by a user to facilitate a removal of the wipe from the container.

Materials suitable for the wipes of the present invention are well known to those skilled in the art. For wet wipes, these can be made from any material suitable for use as a moist wipe, including meltblown, coform, air-laid, bonded-carded web materials, hydroentangled materials, high wet-strength tissue and the like and can comprise synthetic or natural fibers or combinations thereof. The wipes of the different aspects of the present invention can contain a liquid which can be any solution which can be absorbed into the wipes, thus making them "wet wipes." The liquid contained within the wet wipes can include any suitable components which provide the desired wiping properties. For example, the components can include water, emollients, surfactants, preservatives, chelating agents, pH buffers, fragrances or combinations thereof. The

liquid can also contain lotions, ointments and/or medicaments. The amount of liquid contained within each wet wipe can vary depending upon the type of material being used to provide the wet wipe, the type of liquid being used, the type of container being used to store the stack of wet wipes, and the desired end use of the wet wipe. Generally, each wet wipe can contain from about 150 to about 600 weight percent and desirably from about 200 to about 400 weight percent liquid based on the dry weight of the wipe for improved wiping.

Accordingly, the different aspects and features of the present invention can provide containers for wipes which, when compared to conventional containers for wipes, provide improved same container storage and dispensing. Such containers are particularly useful for dispensing baby wipes since the caregiver typically only has one hand free during the diapering process. Thus, the packages for wipes, e.g., wet wipes, of the present invention are reliably and easily opened by one hand of the user or care giver for improved convenience and personal hygiene. Additionally, the packages of the invention can provide better, easier wipe dispensing.

While the invention has been described in detail with respect to the specific aspects thereof, it will be appreciated that those skilled in the art, upon attaining an understanding of the foregoing, may readily conceive of alterations to, variations of, and equivalents to these aspects. Accordingly, the scope of the present invention should be assessed as that of the appended claims.